

Remarks:

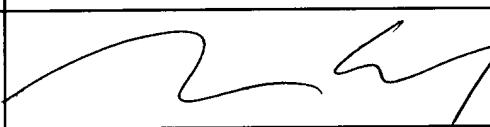
Having elected Group III, directed to a protein, Applicants have canceled all claims herein and rewritten the elected claim, claim 8, in independent form, as new claims 12 and 13. New dependent claims, based on canceled claims 3-6 but dependent from the elected claim, also are added. No new matter is added.

The Office has requested that Applicants provide a listing of claims that encompass the amino acid elected in the species election, with an explanation of why the claims encompass that amino acid. Applicants believe that all of the rewritten claims encompass a protein that contains the elected amino acid species. The embodiment of the invention claimed here relates to proteins in which an amino acid is labeled in a manner which allows study of one bond vector, without interference or dilution from nearby nuclei. Thus, under NMR study conditions where a ¹³C-H bond vector in a ¹³CH₃- (methyl) group is to be studied by detecting ¹³C relaxation, other nearby nuclei should be essentially ¹²C, ¹⁴N and D, since under those conditions, these nuclei do not have an effect on what is being measured (¹³C relaxation), i.e., they are "inactive." The claims cover such situations where two nuclei (or one bond vector) are active under the study conditions and essentially all others are inactive under those same conditions.

In the elected amino acid species, the deuterium atoms are NMR inactive and the hydrogen atoms are NMR active under the conditions described in example 3, which is designed not to pick up D or ¹³C.

The Office Action contains comments to the effect that the terminology "active" and "inactive" are inconsistent. Many isotopes have more than one "activity" in NMR terms. The condition of each study, however, can be designed to detect particular isotopic nuclei to the exclusion of or to a far greater degree than others, or to measure one aspect of a particular nuclei's activity preferentially to another. This is well known in the art. For example, a person of skill knows that D is not detected or is "inactive" under certain conditions and is detected in others. In the invention, Applicant has discovered methods whereby one can modify the isotopic content of individual positions in an amino acid to enable study of dynamic changes in a particular position, for example, with ligand binding.

Applicants request examination on the merits and favorable consideration of the claims at this time.

Respectfully submitted,					
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